

## CLIMATOLOGICAL DATA FOR MARCH, 1911.

## DISTRICT NO. 12, COLUMBIA VALLEY.

EDWARD A. BEALS, District Editor.

## GENERAL SUMMARY.

The weather in the Columbia Valley during March was dry and mild. Owing to the cool nights the season was somewhat backward and fruit trees, except in a few favored localities, had not come into bloom at the close of the month. The frosts did no damage to crops, but the dry weather kept pasture back and stock did not pick up in flesh as rapidly as usual. County roads dried out rapidly, and there were no damaging freshets in the rivers. Transportation by rail and water was not hampered by the elements, and the month as a whole was favorable for agricultural and commercial interests.

## TEMPERATURE.

The mean temperature over practically the entire district was above the normal, a few stations reporting deficiencies. The greatest excess occurred in the elevated valleys of western Montana and southeastern Idaho; the Walla Walla Valley, in southeastern Washington and northeastern Oregon; and in northeastern Washington. In these localities the mean temperatures were about 5° above normal. A few stations on the Oregon coast reported mean temperatures considerably above the normal, but as a rule the temperatures along the coast and on Puget Sound were but slightly above the average for March.

The temperature increased uniformly during the month, the lowest being recorded generally on the first two days and the highest on the last two days. Temperatures below zero occurred at many of the more elevated stations on the 1st and 2d, and the 30th and 31st were unusually warm, the maximum temperature at many of the stations reaching or exceeding 85°. A slight decrease marked the rainy spell from the 23d to the 27th.

The average mean temperature, as determined from the records of 244 stations, was 43.3°, or 2.3° above the district average. The mean temperatures ranged between 51.8° at Glendale, in southern Oregon, and 25.2° at Blackfoot Dam, Idaho. The highest temperature recorded was 91°, on the 31st, at Dayville, Oreg., and the lowest -16°, on the 2d, at the Snake River station, in Yellowstone Park, Wyo.

## PRECIPITATION.

There was a marked deficiency in precipitation throughout the district, the total for the month being about 31 per cent of the normal amount. This is the lightest precipitation on record for the district in March. The number of rainy days was also unusually small. The heaviest precipitation occurred in the western part of the district, generally along the coast and Sound, and on the western slope of the Cascade Mountains. The rainfall in the valleys and on the plateaus was very light.

There were two periods of general precipitation over the entire district, the first extending from the 4th to the 11th, and the second from the 23d to the 27th. From the 12th to the 22d, inclusive, there was an almost unbroken period of fair weather, a rare occurrence in March. The heaviest precipitation occurred generally on the 23d and 24th.

The average, as determined from the records of 360 stations, was 1 inch, which is 2.22 inches below the normal amount for March. The greatest precipitation for the month was 5.90 inches at Gold Basin, Snohomish County, Wash., and there were eight stations, well distributed throughout the district, that reported not more than a trace. The greatest amount recorded in 24 hours was 2.45 inches, on the 24th, at South Bend, Wash., in the coast drainage area. Other heavy 24-hour falls were 1.90 inches, on the 23d, at Yale, Wash., and 1.85 inches, on the 24th, at Gold Basin, Wash., and also at Glenora, Oreg., on the same day.

## THE RIVERS.

The rivers throughout the district were below the normal for the month. The Columbia and Snake Rivers were slightly higher than during February, while the Willamette River and its tributaries were uniformly lower. The highest stages occurred from the 24th to the 31st and the lowest from the 1st to the 5th. Several of the smaller streams in Oregon showed a marked fall during the last two or three days, caused by the unusually light rainfall during the month.

The Columbia River averaged 2.7 feet, which is 2.3 feet below the March normal, being 3.9 feet below at Vancouver and 3.3 feet below at The Dalles. Compared with the February mean stage the average was 0.9 foot higher.

The Willamette River averaged 4.1 feet, which is 3.1 feet below the normal for the month, being 6.4 feet below at Wilsonville and 3.4 feet below at Salem. The highest stage reported was 8.1 feet, at Wilsonville, on the 26th, and the lowest was 0.8 foot, at Harrisburg, on the 4th, 5th, and 6th.

The Snake River averaged 5.5 feet, which is 1.5 feet below the March normal. The river rose slowly from the 1st to the 25th, and then fell slightly on the last few days. The highest stage reported was 7.9 feet, at Riparia, on the 25th, and the lowest was 1.6 feet, at Lewiston, on the 1st.

The work of removing obstructions in the rapids of the upper Columbia was discontinued about the middle of the month owing to the rise in the river due to the melting snows in the mountains. During the time that the dredges and drill scows are unable to operate on the Columbia they will be sent to Long Crossing on the Snake, where a wing dam is to be built. Although the Snake is also rising, it is not thought that it will interfere with the work on the dam.

While the rise in the Columbia and Snake interferes with the work of improving the channel, it is of great benefit to the steamboat men, and it has been announced that the Open River Transportation Co. is making preparations to replace its steamers on the Lewiston run.

Government engineers are preparing to improve the Coquille River channel between Coquille and Myrtle Point. An appropriation of \$56,000 is available for the work, and the improvement will be of great aid in the development of a rich country on both sides of the river.

#### MISCELLANEOUS.

An auroral display was observed at Helena, Mont., on the 19th. Fog was very general and of frequent occurrence along the coast and Sound during the last half of the month. There were a number of solar and lunar halos observed on various dates.

#### THE SEASON'S SNOWFALL; AND SNOWFALL CONDITIONS IN THE MOUNTAINS AT THE HEADWATERS OF THE COLUMBIA RIVER AND ITS TRIBUTARIES AT THE END OF MARCH, 1911.

##### MONTANA.

The conditions over the upper Columbia drainage basin at the close of March were generally favorable for an abundant late flow of water in all of the principal tributaries of this stream. Most of the snow at lower altitudes melted during the month, but the ground being free from frost, the resulting water was practically all absorbed and the effect on the flow of the streams was very slight and in marked contrast to the March thaw of 1910, which caused flood stages in most of the streams.

*Bitterroot watershed.*—The ground was generally bare in the foothills and valleys at the close of the month. Above 5,000 feet elevation there is from 4 to 12 feet of solidly packed snow in the Bitterroot Mountains. In the main range there is more than the usual amount at this season.

*Missoula watershed.*—At the close of the month there was still considerable snow in the valleys and foothills in the form of solid drifts. The snow in the high mountains is very solid, and but little of the winter's fall has melted and run off. The present conditions indicate more than the normal flow in the streams.

*Kootenai watershed.*—In some portions of the Cabinet and Purcell Mountains there is not as much snow as usual at the close of March, but the weather has been exceptionally favorable for packing and solidifying the snow, and it is expected that the late flow of water will be about normal.—*R. F. Young, Section Director.*

##### WYOMING.

The snowfall over the headwaters of the Snake River in western Wyoming was heavy during the winter, much snow falling during the late fall and early winter, so that the amount in the mountains at the close of March was much greater than usual, and was packed very solid.

The snowfall during March was not unusually heavy, and the warm weather melted much of it in the valleys. From present indications the streams will carry more water than usual during the coming summer.—*W. S. Palmer, Section Director.*

##### IDAHO.

The snowfall for November and December was deficient. In January considerable amounts of wet snow fell. In February the snowfall was moderate, while in March it was unusually light. As a result there is only a fair amount of snow remaining in the mountains. There has been less than the usual amount of drifting, and, except over limited areas, slides have been infrequent, but the snow that remains is unusually compact and will melt slowly, giving a moderate flow early in the season and a good flow later. The total run-off will probably be about average.—*Edward L. Wells, Section Director.*

##### WASHINGTON.

The total snowfall of the winter has been less than the average seasonal amount, except in the northern Cascade and some parts of the Okanogan Highlands, and very much less than in the preceding winter of 1909-10. The heaviest snowfall occurred during January, and it was about the normal amount. In December and February it was lighter than average, and in March it was remarkably light. Owing to the light snowfall and mild temperature of March, the snow in the valleys disappeared earlier than usual, but remained on the northern slopes, in the timber, and on summits of the mountains. There was, however, much less than the usual amount on the summits at the end of March.—*G. N. Salisbury, Section Director.*

##### OREGON.

The snowfall early in the winter was very deficient, and the amount remaining on the ground at the end of 1910 was much less than usual. The January snowfall was nearly normal; that for February was above normal in the Siskiyou Mountains, but below normal in all other sections, and there was about an average amount remaining on the ground in mountainous districts at the end of February. Very little snow fell during March, the precipitation in all parts of the State being below the average, but the comparatively mild weather of the last two months has caused the snow blanket in the higher levels to settle and become quite solid. Most of the snow at low and moderate elevations had disappeared by the middle of March, and at the end of the month there was no snow reported below the 3,000-foot elevation. It is estimated that above the 4,000-foot plane there is less than last year's amount of snow remaining on the ground in the Blue Mountains, and more than there was at this time last year on both slopes of the Cascade Mountains and in the Siskiyous. There is, generally, an average amount of unusually well packed snow in the higher levels in sheltered places in the forests, or in gulches, and indications are for a good flow of water continuing late in the season.—*Edward A. Beals, District Forecaster.*

TABLE 1.—Climatological data for March, 1911. District No. 12, Columbia Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unadjusted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>Montana.</i>																				
Anaconda.	Deer Lodge.	5,300	10							1.24		0.47	9.0	4	20	11	0		C. D. Demond.	
Bison Mountain.	Powell.	7,240	2							.20		.20	2.0	1	21	3	7	w.	C. H. Anderson.	
Butte.	Silver Bow.	5,716	17	37.6	+ 6.8	60	19	3	1	.31	.20	-.71	.20	2.0	2	19	7	s.	J. R. Wharton.	
Columbia Falls.	Flathead.	3,100	16	37.6	+ 4.3	64	20	5	17	.41	.28	-.90	.20	2.0	2	16	7	s.	J. M. Grist.	
Como § **.	Ravalli.	3	41.1			66	19	3	1	.34	.25		.10	2.0	3	21	7	s.	Hiram Platt.	
East Anaconda §   .	Deer Lodge.	5,500	6																C. D. Demond.	
Fortine.	Lincoln.	2,975	6	37.2		65	20	-3	1	.43	.74		.28	6.0	8	11	8	sw.	Mike Petry.	
Hamilton.	Ravalli.	3,575	8	41.9		69	31	2	1	.34	.00		.00	.0	0	22	3	w.	Bitter Root Valley Irrig'n Co.	
Hat Creek.	Powell.	6,000	2															w.	M. K. Landreth.	
Kalispell.	Flathead.	2,965	13	38.4	+ 5.4	64	20	3	1	.34	.51	-.57	.26	3.9	6	16	8	sw.	U. S. Weather Bureau.	
Lost Creek.	Deer Lodge.	5,200	3										T.					s.	Frank Renaud.	
McGinnis Meadows.	Lincoln.	2	35.9			65	19	-1	2	.52	.51		.15	4.7	7	16	7	sw.	H. L. Beebe.	
Missoula.	Missoula.	3,225	32	39.0	+ 4.1	68	31	0	1	.38	.11	-.95	.08	3				w.	U. S. Weather Bureau.	
Ophir.	Powell.	8,800	2															w.	E. S. Wilton.	
Ovando.	do.	4,207	12	31.6	+ 2.3	58	31	-5	3	.38	.90	-.88	.55	5.5	0	31	0	sw.	S. B. Muchmore.	
Philipsburg.	Granite.	5,275	8	36.3		66	30	-5	1	.46	.15		.15	3.0	1	16	0	s.	G. T. Bramble.	
Plains.	Sanders.	2,475	13	40.5	+ 3.6	68	19	2	1	.43	.20	-.82	.20	1.1	1	22	0	sw.	M. H. Pierce.	
Pleasant Valley.	Flathead.	3,500	4	32.9		60	22	-13	2	.58	.77		.12	5.2	10	16	11	w.	A. D. Stillman.	
Polson.	do.	2,920	4	40.4		68	20	7	17	.39	.37		.34	2				w.	F. P. Brown.	
Proctor.	do.	2,800	7															w.	C. E. Proctor.	
St. Ignatius.	Missoula.	2,700	6	39.7		70	19	-2	1	.47	.47		.27	4	3	17	4	sw.	U. S. Reclamation Service.	
St. Regis.	do.	2,650	4	38.2		71	19	-2	1	.48	.57		.33	2.0	3	11	20	ne.	R. D. Lee.	
Saltse.	do.	3,600	7			55	19	10	1	.25	.256		.58	18.0	6	20	0	w.	E. K. Tarbox.	
Snowshoe.	Lincoln.	4,500	5	35.0												12	13	w.	J. C. Riter.	
Troy.	do.	1,880	17															w.	W. E. Milnor.	
Willow Glen Stock Farm, §§	Deer Lodge.	5,064	1	37.3		64	30	6	2	.36	T.		T.	T.	0	22	9	sw.	G. E. Luce.	
<i>Wyoming.</i>																				
Afton.	Uinta.	6,200	7	25.8	- 3.1	53	30	-10	2	.41	.82	- 1.02	.38	6.0	4	20	3	sw.	A. V. Call.	
Alta.	do.	7,000	1	26.8		58	30	-9	26	.46	.72		.30	9.0	6	18	4	sw.	Mrs. Lucy Brown.	
Bedford.	do.	5,900	11																C. G. Helmer.	
Belcher River.																			Do.	
Snake River.	Yellowstone Park.	7,000	5	26.4		50	30	-16	2	.53	1.60		.50	11.0	5	18	6	7	w.	U. S. Army.
<i>Nevada.</i>																				
San Jacinto.	Elko.		6	37.0		68	31	4	1	.44	.23		.11	.5	4	21	2	sw.	Mose Jones.	
<i>Utah.</i>																				
Standrod.	Boxelder.		6	39.0		67	31	11	1	.30	.88		.32	5.7	7	18	18	5		T. B. Jones.
<i>Idaho.</i>																				
Albion.	Cassia.	4,660																	C. E. Bocock.	
Alpha.	Boise.	1	28.8			63	31	-21	2	.62	1.38		.49	6.7	7	21	4	6	s.	J. W. King.
American Falls.	Oneida.	4,341	20	40.5	+ 4.8	71	31	6	1	.42	.84	-.77	.45	.0	6			w.	Harry W. Hall.	
Blackfoot.	Blackfoot.	4,503	16	37.7	+ 2.0	70	31	0	2	.42	.36	-.59	.19	.5	3	20	9	sw.	E. A. Dowd.	
Blackfoot Dam.	Bannock.	2	25.2			52	31	-15	2	.40				6.0		20	1	10	s.	N. W. Inskip.
Bock's Ranch.	Elmore.	3,500	2															w.	Wm. Bock.	
Bogus Creek.	Boise.	4,200	3															w.	F. P. Ingraham.	
Boise.	Ada.	2,739	26	44.8	+ 2.6	75	31	18	1	.34	.58	-.89	.28	.3	4	18	8	se.	U. S. Weather Bureau.	
Bonner's Ferry.	Bonner.	1,850	4	39.2		68	22	10	3	.41	.89		.39	2.0	5	17	11	sw.	W. H. Helderman.	
Boulder Mine.	Boise.	4,800	2															w.	P. Moriarty.	
Buhl.	Twin Falls.	3,800	5	43.4		61	30	13	1	.43	.75		.32	0	5	22	8	e.	Hugh Taylor.	
Caldwell.	Canyon.	2,372	7	43.6		77	31	9	1	.45	.19		.17	0	2	18	10	sw.	Dr. W. J. Boone.	
Camas.	Fremont.	4,815	3	34.0		68	31	5	2	.49	.19		.08	0	4	23	1	w.	Mrs. Edna Faulkner.	
Cambridge.	Washington.	2,651	16	40.0	+ 2.2	76	31	0	1	.45	.86	- 1.35	.26	.0	6			w.	C. H. Shepherd.	
Cedar Creek Dam.	Twin Falls.	1																w.	Robert Hoffman.	
Chesterfield.	Bannock.	5,424	16	33.6	+ 4.6	64	30	-11	2	.47	.57	-.94	.35	3.8	5	17	12	sw.	Chas. S. West.	
Coeur d'Alene.	Kootenai.	2,157	4			74	31	13	1	.40	.77		.50	0	3	24	4	sw.	Jos. T. Scott.	
Cottonwood Creek.	Boise.	4,000																w.	F. Hedrick.	
Culdesac.	Nez Perce.	1,520	3	43.2														w.	R. R. Richmond.	
Deary.	Latah.																	w.	H. P. Henry.	
Dent.	Clearwater.	1,350																w.	E. Schuessler.	
Driggs.	Fremont.	6,097	5	36.2		55	31	-6	24	.39	.56		.22	4.0	5	17	5	sw.	W. H. Durrant.	
Edie.	do.	2	27.0			57	31	-3	2	.35	T.		T.	0	2	21	5	s.	Geo. B. Edie.	
Emmett.	Canyon.	2,350	5	45.2		78	31	12	2	.41	.29		.18	0	3	20	4	w.	C. P. Kar.	
Forney.	Lehman.	13	30.4	- 1.4		71	29	-10	1	.51	.34	- 1.47	.14	.6	3	18	4	sw.	M. B. Merritt.	
Garden Valley.	Boise.	3,600	6															w.	Mrs. Gertrude M. Ross.	
Garnet.	Elmore.	2,575	12	47.2	+ .4	82	31	13	1	.45	.53	-.36	.40	0	3	25	3	sw.	A. A. Kenison.	
Glenns Ferry.	do.	2,569	4	44.2		80	31	17	1	.52	.44		.24	0	2	26	3	sw.	I. E. Perkins.	
Gooding.	Lincoln.	3,572	2	41.0		75	31	9	1	.44	.47		.32	0	3	21	5	e.	John Krall, Jr.	
Grand Forks.	Shoshone.	3,000	2	35.2		63	20	0	2	.50	.52		.45	0	10	19	2	sw.	Henry Kotkey.	
Grandview.	Owyhee.	2	43.4			80	31	2	1	.48	.34		.24	0	2	21	5	e.	N. G. Massey.	
Grimes Pass.	Boise.	5,200	2															w.	J. M. Clarke.	
Guffey.	Owyhee.	2,381	3	46.9		82	31	14	1	.45	.57		.30	0	7	22	8	ne.	Fred Perry.	
Halei.	Blaine.	5,347	8	30.4		57	31	5	1	.33	1.03		.27	6.0	7	21	4	ne.	U. S. Forest Service.	
Hotspings.	Owyhee.	2,762	6	45.5		79	31	16	1	.43	.64		.34	0	2	20	8	3.	J. M. Waterhouse.	
Idaho City.	Boise.	4,000	12															n.	Mrs. Emma L. Hammer.	
Idaho Falls.	Bonneville.	4,742	17	38.3	+ 5.4	70	30	0	2	.40	.63	- 1.13	.33	3.2	3	23	4	ne.	Dr. T. M. Bridges.	
Indian Valley.	Adams.	2,999	3			65	30	2	12	.43	1.14		.50	4.5	5	19	8	sw.	A. M. Henke.	
Irwin.	Bonneville.	6,500	2	33.8		71	22	9	2	.45	1.36		.32	1.5	7	21	1	sw.	Eva Johnston.	
Kellogg.	Shoshone.	2,305	7	39.8					</											

TABLE 1.—Climatological data for March, 1911. District No. 12—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing direction of wind.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unaltered.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i><b>Idaho—Continued.</b></i>																				
Milner.	Twin Falls.	4,110	8			72	31	7	2	36	.05		.04	T.	2			J. K. Young.		
Moscow.	Latah.	2,748																University of Idaho.		
Mountainhome.	Elmore.	3,150	6	41.6		76	31	11	1	49	.85		.31	.2	5	22	5	4	Mrs. E. Manlon.	
Murtaugh.	Twin Falls.	5	39.4			71	31	2	1	38	.66		.37	1.5	3	25	5	1	J. F. Stelnour.	
Nex Perce \$.	Lewis.	3,082	2	40.2		66	22†	0	1	41	.16		.10	.0	4	20	6	5	P. Mitchell.	
Oakley.	Cassia.	4,700	18	41.6 + 2.9		75	30	0	2	48	.55	-0.47	.20	.0	3	23	8	0	John Adams.	
O'Hara Bar.	Idaho.	1,400	2								1.75		.40	.0	6				J. D. Agnew.	
Orofino.	Nez Perce.	1,027	6	43.1		77	22	15	2	50	.81		.24	.0	7	20	9	2	Geo. Alteneder.	
Payette.	Canyon.	2,159	26	43.6 + 1.1		77	31	15	1	47	.24	-1.03	.15	T.	4	20	4	7	E. F. Allen.	
Peaceful Valley.	do.	2,325	1			65	31	12†	1	56	2.34		.13	.0	4	21	7	3	se.	
Pebble.	Custer.	5,277	2			52	31	-25	1	56	.68		.46	7.0	2	24	1	6	J. W. Newton.	
Pierson.	Elmore.	7,000	3	21.6							1.61		1.00	9.2	3	16	10	5	Mrs. Fannie Say.	
Pine.	Ada.	4,100	4	43.0		75	31	8	1	42	.59		.34	.0	3	23	1	7	D. P. Clarke.	
Pleasant Valley.	Bannock.	3,000	12	40.4 + 3.5		68	31	8	2	34	1.12	-0.63	.52	1.2	5	17	9	5	Mrs. Jennie Potter.	
Pocatello.	Pocatello Nursery.	4,483	5																U. S. Weather Bureau.	
Poplar.	Bonneville.	5,396																	Mrs. Anna B. Wrenst.	
Porthill.	Bonner.	1,065	22	37.8 + 2.9		63	29	5	3	34	.95	-0.41	.35	3.1	6	19	3	9	C. M. Lawrence.	
Powers Ranch.	Boise.	4,300	3								1.06		.42	.7	5	25	6		H. A. French.	
Pyle Creek.	do.	3,100	2										.83		25	T.	6	19	Mrs. Mary French.	
Rattlesnake Creek.	Elmore.	4,000	3										1.11		40	T.	7	23	P. V. Smith.	
Richfield.	Lincoln.	2	35.8			69	30†	5	1	40	.64		.27	2.5	6	25	5	1	R. M. Green.	
Roseworth.	Twin Falls.	1									.48		.20	.9	4	3	27	1	Idaho Irrigation Co.	
Roseberry.	Boise.																	D. B. Hartwell.		
Ruby Creek.	do.	4,400	3								1.31		.40	.0	6	18	5	8	Rev. H. F. Barstow	
Rupert.	Lincoln.	4,204	5	40.0		71	31	4	1	40	.72		.49	1.0	5	25	0	6	O. A. Hatter.	
St. Maries.	Kootenai.	2,203	14	41.4 + 1.6		71	19	11	1	41	1.65	-0.99	.35	2.5	11	17	7	7	J. S. Turnbull.	
Salmon.	Lemhi.	4,040	6	32.7		67	29	9	2	39	.01		.01	.2	1	23	7	1	B. C. d'Easum.	
Salmon River Dam.	Twin Falls.	4,086	4	41.2		71	31	12	1†	37	.70		.33	1.0	5	14	9	8	A. M. Gilbert.	
Sandpoint.	Bonner.	2,086	1	39.0		67	30	3	2	45	1.33		.32	1.0	7	18	3	10	J. H. Edgerton.	
Sheep Hill.	Boise.	5,000	3								.78		.38	.5	7				C. M. Gardner.	
Shoshone.	Lincoln.	3,968	3															O. A. Truman.		
Silver City.	Owyhee.	6,280	4								.70		.26	4.5	6	16	12	3	A. D. Bradford.	
Smith Prairie.	Elmore.	5,200	2								1.20		.36	4.5	5				W. H. Newell.	
Smith Ranger Station.	Bonner.	1,080	1			56	21†	2	26	40	1.16		.52	4.0	5	19	6	6	T. D. Crittenden.	
Soldier Creek.	Blaine.	1	32.6			70	22	1	1	49	1.58		.43	18.7	6	24	4	5	J. F. Minear.	
Spirit Lake.	Kootenai.	1	38.4			68	31	26	1	41	.86		.71	2.5	3	27	1	3	M. C. Krause.	
Springfield.	Bingham.	4,420	3	33.2		70	30†	0	1	42	.32		.21	2.3	2	24	2	5	Mrs. W. A. Edwards.	
Sugar.	Fremont.	4	35.0			68	31	4	2	40	.17		.11	1.0	2	18	5	8	Utah-Idaho Sugar Co.	
Sunnyside.	Elmore.	2	41.5			74	31	14	1†	43	.48		.30	.0	3				E. A. Wilmet.	
Tripod Mountain.	Boise.	4,300	2								.89		.30	1.1	5	21	4	6	Mrs. Verna Paddock.	
Twin Falls.	Twin Falls.	3,825	6	40.8		75	31	8	1	45	.49		.34	T.	4	18	12	1	J. A. Waters.	
Vernon.	Fremont.	14	31.0 + 1.3			63	31	3	2	39	.44	-1.19	.21	2.0	4	21	7	3	A. M. Slattery.	
Wallace.	Shoshone.	2,728	4	39.3		68	20	13	1	36	.28		.40		12			U. S. Weather Bureau.		
Wendell.	Lincoln.	3,400	3	42.4		76	31	13	1	46	.30		.27	.0	2	20	5	6	C. L. Dingler.	
<i><b>Washington.</b></i>																				
Aberdeen.	Chehalis.	162	20	45.1 + 1.3		72	31	25	2	38	3.97	-4.36	1.56	.0	11	5	22	4	e.	C. S. Weatherwax.
Anacortes.	Skagit.	60	17	42.9		60	8	30	15†	23	.16	-2.22	.07	.0	3	24	7	0	Douglas Allmond.	
Baker.	do.	200	5	45.4		68	31	26	1	41	4.0	2.92	.88	.0	7	16	4	11	Robt. M. White.	
Bellingham.	Whatcom.	60	16	45.0 + .9		61	29	23	1	35	.95	-1.76	.29	.0	8	24	5	2	Sanford B. Mayhew.	
Bellingham (near).	do.			42.8		60	6	23	1†	33	1.13		.38	.0	8	17	12	2	U. S. Bureau Plant Industry.	
Beverly.	Grant.	57	14	42.4 + 2.2		60	6	25	2	25	2.17	-1.46	.73	.0	9	10	18	3	nw.	John W. Sheets.
Blaine.	Whatcom.	57	14	42.4 + 2.2		60	6	25	2	25	.60		.20	1.0	5	20	11	1	John Burmester.	
Blewett.	Chelan.	2,200	1								1.06		.28	.0	8				U. S. Navy Yard.	
Bremerton.	Kitsap.	30											.30	.0	4	23	6	2	Mrs. H. F. Bertram.	
Brewster.	Okanogan.	1,620	1	41.0		70	29†	12	2	30	.47								U. S. Reclamation Service.	
Bumping Lake.	Yakima.	3,400																	Valley Power Co.	
Cashmere.	Chelan.	960																	Geo. Landsburg.	
Cedar River.	King.	535	4																I. S. Turner.	
Centralia.	Lewis.	212	18	45.6 + 1.6		73	31	19	1†	47	1.97	-2.25	.76	.0	8	17	10	4	w.	U. S. Power Co.
Chemey.	Spokane.	2,351	12	41.1		68	22	16	1	31	.89	-2.38	.32	.0	5	16	4	15	I. S. Buchanan.	
Cle Elum.	Kittitas.	1,930	12	39.8 + 2.5		73	31	4	1	44	.86	-1.62	.31	.0	8	19	7	5	J. A. Balmer.	
Clearbrook.	Whatcom.	140	8	42.9		65	15	20	1†	40	2.30		.59	.0	8	8	10	13	George Gibbs.	
Clearwater.	Jefferson.	135	15																	
Colfax.	Whitman.	2,300	22	43.0 + 2.8		73	22	11	1†	41	.79	-1.41	.35	.0	5	21	4	4	W. H. James.	
Coive.	Stevens.	1,635	11	41.0 + 4.7		72	22†	5	2	45	.55	-1.81	.18	.5	5	21	5	5	W. L. Sax.	
Conconully.	Okanogan.	2,300	11	39.3 + 3.6		68	30	6	1	39	.66	-1.01	.50	.0	4	15	9	7	Wm. Baines.	
Crescent.	Lincoln.	2,250	11																Ottie Wallweber.	
Davenport.	do.	2,450	2	39.2		69	30	6	3	34	.69		.24		6	23	4	4	J. W. Thayer.	
Dayton.	Columbia.	1,700	25	45.9 + 2.9		77	22	10	1	38	.68	-1.66	.24		8	16	11	4	w.	J. W. Hendron.
Detroit.	Mason.	30	3	44.8		72	30†	23	1	38	2.00		.79		9	16	8	7	W. O. Eckert.	
Dixie.	Walla Walla.	5,000	3	44.2a		67	31	23	1†	37	1.38		.35	5.5	8	17	4	10	T. Z. Andrews.	
Duckabush.	Jefferson.	380	3	44.2a		72	31	20	1†	37	1.15		.35	.0	3	21a	4	3a	E. G. Newman.	
Eastsound.	San Juan.	500	16																B. E. Harrison.	
Ellensburg.	Kittitas.	1,571	23	42.4 + 3.1		75	31	11	1†	45	.32	-2.25	.19	.0	3	24	3	4	R. L. Barnes.	
Ephrata.	Grant.	1,265	8	43.7		72	30	11	1	29			.18	T.	5	19	8	4	T. J. Cook.	
Forks.	Clallam.	480	2																	
Fort Simcoe.	Yakima.	1,427	17	43.2 + 1.0		81	30													

TABLE 1.—Climatological data for March, 1911. District No. 12—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing direction of wind.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeasured.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
<b>Washington—Contd.</b>																				
Lake Keechelus.	Kittitas.	2,479	3	43.0	+ 3.2	74	30	13	2	38	.48	— .45	.19	2.0	5	16	12	3	sw.	W. H. Van Meter.
Lakeside.	Chelan.	1,116	20	43.0	+ 3.2	74	30	13	2	38	.83	— .83	.18	0	7	18	12	1	w.	Mrs. Minnie E. Strout.
Laurel.	Klickitat.	1,900	2																s.	Mrs. J. S. Myers.
Laurier.	Ferry.	1,644	1	38.8		68	30 <sup>†</sup>	5	2	40	.94	— .94	.23	2.0	6	17	6	8	e.	W. W. Clabaugh.
Lester.	Kitsap.	1,614	7	41.4		77	18	23	1 <sup>†</sup>	52	1.62	— .62	.70	2.0	7	19	7	10	nw.	U. S. Engineer Corps.
Lone Tree.	Chehalis.	14	2	45.7		58	31	35	1 <sup>†</sup>	21	2.87	— .87	1.44	0	11	11	7	13	sw.	
Longmires Spring.	Pierce.	2,900	12																se.	P. H. Leese.
Lost Creek.	Okanogan.	3,125	2																nw.	Mrs. Barbara Schearer.
Lucerne.	Chelan.	1,100	4	42.3b		76 <sup>b</sup>	31	22 <sup>b</sup>	2	35	.05	— .05	.05	.5	1	16 <sup>b</sup>	2 <sup>b</sup>	11 <sup>b</sup>		
McConline.	Grant.																			
McCumbers Ranch.	Yakima.	2,182	2																sw.	Mrs. Mary McCumber.
Mettinger.	Benton.	307	11	50.8	+ 2.5	86	29 <sup>†</sup>	17	1	47	.27	— .63	.13	T.	3	23	2	1	w.	G. H. Mottinger.
Mount Pleasant.	Clallam.			42.4		60	19	29	1	24	1.25	— .25	.34	0	10	14	4	13	nw.	De Witt Burns.
Moxee.	Yakima.	1,000	19	44.9	+ 2.7	83	31	11	1	50 <sup>a</sup>	.24	— .34	.13	T.	2	16	11	8	e.	Henry R. Scudder.
Newport.	Stevens.	2,400	1	37.8		68	22	3	1 <sup>†</sup>	45	1.15	— .15	.21	1.0	9	20	6	5	nw.	Chas. M. Talmadge.
Nighthawk.	Okanogan.	3,050																	sw.	Steve Nazy.
North Head.	Pacific.	211	9	45.4	+ 0.5	62	3	38	13	23	1.62	— 3.63	.91	0	12	13	4	14	nw.	U. S. Weather Bureau.
Northport.	Stevens.	1,350	12	40.2		70	30	11	1	39	.98	— .33	.23		8	19	8	4	nw.	F. G. Janneck.
North Yakima.	Yakima.	1,070	2	47.2		82	31	16	1	47	.23	— .23	.09	T.	4	21	7	3	nw.	Albert Bender.
Nutland.	Klickitat.	2	48.4			80	30 <sup>†</sup>	16	1	42	.27	— .27	.10	0	5				nw.	Ruth J. Shepard.
Odessa.	Lincoln.	1,540	8	47.5		78	21 <sup>†</sup>	15	1	50	.15	— .15	.10	1.0	3	19	6	6	sw.	W. N. Neely.
Olga.	San Juan.	50	21	44.4	+ 1.2	57	6	32	2 <sup>†</sup>	18	1.13	— 1.33	.53	0	5	17	11	3	nw.	Cecil S. Willis.
Olympia.	Thurston.	200	33	44.6	+ .3	72	31	20	1	40	2.32	— 2.87	.99	0	9	18	0	13	sw.	M. O'Connor.
Omak.	Okanogan.	850	2																	
Oroville.	do.	922	2																	
Peota.	Garfield.	5,000	2																	
Pomeroy.	do.	1,500	19	45.0	+ 2.9	75	22	17	1	40	1.10	— .96	.50	0	3	19	4	8	nw.	Samuel Gruell, sr.
Port Crescent.	Cowlitz.	259	16	40.9	+ .1	57	15	25	3	24	1.14	— 2.78	.37	0	10	4	20	7	s.	Peter McClung.
Port Townsend.	Jefferson.	80	21	44.4	+ .0	62	31	32	1 <sup>†</sup>	24	1.42	— 1.40	.16	0	7	16	5	10	ne.	U. S. Weather Bureau.
Pullman.	Whitman.	2,550	19	40.8	+ 2.9	66	19	11	1	30	1.52	— .73	.55	2.0	7	18	10	3	sw.	Frank Plummer.
Quinault.	Chehalis.	300	4																	
Republic.	Ferry.	2,628	11	37.1	+ 1.4	71	29 <sup>†</sup>	3	2	43	.29	— .10	.0	0	4	21	1	9	w.	Geo. B. Stocking.
Rex Creek.	Chelan.	1,135	4	45.7		74	31	24	1 <sup>†</sup>	29 <sup>c</sup>	.25	— .0	.0	0	16	1	9	nw.	Jas. W. Nicol.	
Ritzville.	Adams.	1,825	12																	
Rock Lake.	Whitman.	1,910	5	42.0		71	22 <sup>†</sup>	13	1	36	.86	— .86	.40	2.0	5	21	3	12	w.	P. M. Ramsey.
Rosalia.	do.	2,426	19	41.6	+ 3.9	68	22	14	2	29	.74	— .95	.36	1.5	6	19	7	5	sw.	Hans Mumun.
Russell's Ranch.	Yakima.	2,870	2																	
Sedette.	King.	123	20	45.8	+ 1.6	63	31	31	2	24	.82	— .82	.15	1.5	9	16	8	7	n.	Miss Maggie M. Russell.
Sedro Woolley.	Skagit.	38	14	46.0	+ 1.9	69	20	27	2 <sup>†</sup>	39	1.56	— 2.80	.40	0	9	8	12	11	n.	U. S. Weather Bureau.
Sixpence.	Klickitat.	1,240	4	47.2		80	29 <sup>†</sup>	11	1	41	.27	— .11	.0	4	23	3	5	sw.	Mrs. H. L. Devin.	
Skagit Power Dam.	Whatcom.	1																		
Snohomish.	Snohomish.	100	17	45.3	+ 1.7	65	26 <sup>†</sup>	23	1 <sup>†</sup>	37	1.76	— 2.66	.38	0	10	17	2	13	nw.	Warren Hodge.
Snoqualmie Falls.	King.	607	12	45.2	+ 1.7	71	29	25	3	37	2.13	— 3.34	.63	0	12	16	4	11		O. N. Wiswell.
Snoqualmie Pass.	Kittitas.	3,000																		C. E. Ingraham.
Snyder's Ranch.	Okanogan.	2,200	2	34.8		70	29	— 2	3	46	.50	— .50	.37	.5	3	23	8	1	w.	Geo. M. Snyder.
South Bend.	Pacific.	16	46.2	+ 1.0		71	31	26	1	34	4.44	— 4.36	2.45	0	11	12	10	9	w.	Winifred Elchner.
Spokane.	Spokane.	1,943	30	43.5	+ 4.6	70	22	16	2	35	.83	— .68	.52	1.2	6	13	8	10	sw.	U. S. Weather Bureau.
State University.	King.	170	2	45.0		60	67	30	2	26	1.06	— .26	.26	0	8	12	9	10	s.	University of Washington.
Stokes's Ranch.	Okanogan.	2,670	2																	Chas. W. Gunn.
Sullivan's Lake.	Stevens.	2,700																		
Sumner.	Pierce.	77	3	43.4		67	31	20	1	38	1.18	— .24	.0	10	17	2	12	sw.	Herbert E. Thompson.	
Sunnyside.	Yakima.	740	16	45.8	+ 2.8	81	30 <sup>†</sup>	15	1	48	.26	— .11	.21	0	4	16	13	2	nw.	U. S. Reclamation Service.
Tacoma.	Pierce.	213	25	45.0	+ .8	62	31	27	1	30	1.33	— 2.65	.15	3	25	3	3	sw.	U. S. Weather Bureau.	
Talooch Island.	Cowlitz.	86	26	43.7	+ .8	53	6	36	11	16	3.20	— 5.37	1.08	T.	10	6	4	21	n.	Do.
Tieton.	Yakima.	2,000	2																	
Tomasket.	Okanogan.	945		40.4		72	30	2	3	36	.65	— .65	.65	0	1	19	7	5	w.	E. H. Twight.
Touchet.	Walla Walla.	556	4	46.4		82	31	7	1	48	.27	— .15	.15	0	5	23	1	7	sw.	D. W. Dorrance.
Touchet Ridge.	Columbia.	2,500	2																	
Trinidad.	Douglas.	900	7	46.5		78	31	17	2	36	.38	— .38	.15	3	25	3	3	sw.	R. H. King.	
Vancouver.	Clarke.	100	36	48.3	+ 2.9	78	31	24	2 <sup>†</sup>	40	.70	— 3.12	.18	0	8	16	11	4	nw.	J. C. Wheeler.
Vashon Island.	King.	40	22	44.2	+ .4	59	22	27	1 <sup>†</sup>	24	1.60	— 2.36	.50	0	9	19	1	11	n.	A. A. Quarnberg.
Wahluke.	Grant.	410	7	47.6		82	30	18	1	40	.84	— .84	.0	1	21	5	5	sw.	Gertrude McClintock.	
Wallace.	Okanogan.	4,000	2																	
Walla Walla.	Walla Walla.	1,000	27	48.9	+ 4.9	79	22	12	1	36	.46	— 1.43	.18	0	6	20	5	5	w.	F. M. Grout.
Washougal.	Clarke.	650	11	48.3	+ 3.0	77	29	30	1	38	1.44	— 4.45	.40	0	10	18	8	5	w.	O. R. Hopewell.
Waterville.	Douglas.	2,624	21	37.2	+ 3.8	69	31	4	2	33	.38	— .58	.18	2.0	3	25	2	4	sw.	Geo. A. Pitcher.
Wenatchee (near).	Chelan.	1,169	12	42.2	+ 2.6	72	30 <sup>†</sup>	18	1	28	.44	— .90	.18	4.8	4	17	10	4	w.	C. W. J. Reckers.
White Salmon.	Klickitat.	47.7				78	31	21	1	41	1.01	— .20	.0	11	19	4	8	sw.	Rollin J. Reeves.	
Wilbur.	Lincoln.	2,203	12	42.0	+ 4.7	75	30	0	1	48	.23	— .66	.15	5.0	2	19	7	5	nw.	Geo. A. Wallace.
Wind River.	Skamania.	41.1				78	31	12	2	50	3.08	— 1.05	T.	11	18	6	7	sw.	U. S. Forest Service.	
Winthrop.	Okanogan.	37.9				76	3													

TABLE 1.—*Climatological data for March, 1911. District No. 12—Continued.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing direction of wind.	Observers.			
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
<b>Oregon—Continued.</b>																					
Ella.	Morrow.	830	7	45.3	.....	84	31	10	1	50	.46	— .23	.22	.0	5	25	2	4	sw.	Carl F. Troedson.	
Eugene.	Lane.	449	21	48.4	+ .7	74	31	25	1	37	.71	— 3.18	.17	.0	10	16	10	5	nw.	F. L. Barker.	
Fairview.	Coos.	142	15	47.8	+ .1	80	29	30	1	45	3.70	— 4.52	.75	.0	10	21	0	10	nw.	Wm. Bettys.	
Falls City.	Polk.	355	14	47.5	+ 3.4	80	31	25	1	44	1.52	— 7.12	.51	.0	9	23	3	5	e.	Chas. F. Vick.	
Forest Grove.	Washington.	220	22	47.6	+ 3.6	78	30 <sup>+</sup>	23	2	40	.70	— 4.08	.25	.0	6	15	14	2	n.	Pacific University.	
Gardiner.	Douglas.	72	21	51.0	+ 3.9	80	30	21	2	37	3.47	— 5.81	.60	.0	11	11	10	10	.....	J. S. Gray.	
Glendale.	do.	1,441	7	51.8	.....	87	31	23	1	51	.81	— .63	.0	2	23	5	3	nw.	B. J. Simpson.		
Glenora.	Tillamook.	575	20	43.8	+ .8	82	31	21	2	24	4.25	— 8.55	1.85	.0	10	21	2	10	sw.	Mrs. Jennie A. Reher.	
Gold Beach.	Curry.	40	10	47.8	+ .2	70	30 <sup>+</sup>	— 31	12	31	4.08	— 7.60	1.02	.0	9	20	1	10	nw.	C. Dewey.	
Granite.	Grant.	4,680	6	33.2	.....	71	31	— 7	1	54	.05	— .05	T.	1	16	9	7	sw.	L. N. Ford.		
Grants Pass.	Josephine.	956	23	49.6	+ 3.6	86	31	23	137	52	.93	— 2.89	.46	.0	8	17	7	7	sw.	John B. Paddock.	
Grass Valley.	Sherman.	2,881	10	41.4	+ .3	88	30	13	1	50	.00	— .90	.00	.0	8	4	19	sw.	Agent, O. R. & N. Co.		
Headworks.	Clackamas.	719	9	47.0	.....	79	19	28	167	45	2.71	— 5.81	.55	.0	11	21	6	4	e.	Portland Waterworks.	
Heppner.	Umatilla.	1,950	21	45.6	+ 3.0	77	31	9	1	40	.37	— 1.24	.10	.0	6	22	4	5	w.	Ralph M. Kenton.	
Hermiston.	do.	451	4	47.7	.....	84	30 <sup>+</sup>	11	1	53	.14	— .09	.0	3	19	9	3	sw.	C. W. Kellogg.		
Hermoso Rio.	Crook.	300	21	45.3	+ 2.8	80	30 <sup>+</sup>	20	1	45	.25	— 3.25	.10	T.	4	26	1	4	w.	Carl T. Hubbard.	
Hood River.	Baker.	2,165	10	47.6	+ 4.4	76	30	27	1	42	.02	— 1.95	.02	.0	1	26	5	0	se.	H. L. Hasbrouck.	
Huntington.	Jackson.	1,640	23	49.6	+ 3.9	84	30 <sup>+</sup>	28	1	46	.34	— 2.36	.23	.0	4	23	7	1	.....	L. Connell.	
Joseph.	Wallowa.	4,400	22	34.2	+ 1.6	70	31	0	1	34	.20	— 1.86	.10	2.0	2	19	5	2	s.	E. Britt.	
Klamath Agency.	Klamath.	4,189	3	34.2	.....	68	30	3	9	43	.35	— .20	3.5	2	22	7	2	sw.	F. P. McCully.		
Klamath Falls.	do.	4,100	22	39.4	— 2	76	31	12	1	36	.41	— 1.03	.31	3	25	3	3	sw.	Edison C. Watson.		
La Grande.	Union.	2,784	24	42.6	+ 2.9	78	31	3	1	48	.45	— 1.47	.17	T.	4	23	3	5	sw.	W. H. Hellerman.	
McKenzie Bridge.	Lane.	1,400	10	45.0	+ 1.8	84	30	16	1	56	2.60	— 4.69	.44	.0	12	15	1	15	sw.	W. A. Worstell.	
McMinnville.	Yamhill.	182	24	48.3	+ 3.0	79	30	30	137	43	.81	— 3.39	.28	.0	6	16	6	9	ne.	Geo. Frissell.	
Marshfield.	Coos.	34	10	47.9	+ .5	77	30	28	2	40	2.90	— .67	.0	11	2	2	2	sw.	U. S. Weather Bureau.		
Merrill.	Klamath.	4,070	5	40.0	.....	75	30 <sup>+</sup>	12	1	44	.40	— .30	3.0	2	27	2	2	sw.	Mrs. Agnes Ritchison.		
Mikkalo.	Gilliam.	1,400	5	45.2	.....	79	31	18	1	40	.49	— .17	.0	3	23	4	4	w.	Frank Little.		
Miramonte Farm.	Clackamas.	195	23	47.6	+ 1.0	78	30 <sup>+</sup>	28	13	40	.87	— 3.73	.21	.0	8	20	5	6	sw.	G. Muecke.	
Monroe.	Benton.	350	14	47.1	— 4	75	30	12	1	43	1.20	— 4.11	.41	.0	4	14	10	7	sw.	L. A. Peek.	
Mount Angel.	Marion.	485	25	48.0	— 1	74	30	28	1	30	1.29	— 3.67	.53	.0	7	20	6	5	sw.	Dr. Urban Fisher.	
Mount Hood.	Hood River.	1,850	1	42.1	.....	78	31	10	1	43	1.01	— .44	1.0	4	22	3	6	w.	S. G. Babson.		
Music.	Douglas.	5,000	2	40.8	.....	68	30	19	1	30	2.73	— 1.00	11.0	9	21	1	9	sw.	Alex. Lundberg.		
Newport.	Lincoln.	69	24	48.8	+ 2.6	72	4	32	127	30	1.71	— 5.99	.51	.0	10	17	8	8	nw.	Wm. Matthews.	
North Bend.	Coos.	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	High School.		
Paisley.	Lake.	4,500	8	42.0	.....	72	30 <sup>+</sup>	9	1	36	.53	— .36	.0	2	24	5	2	sw.	E. C. Woodward.		
Pendleton.	Umatilla.	1,070	23	46.9	+ 2.3	83	22	8	1	45	.25	— 1.24	.15	4	23	5	3	w.	E. F. Averill.		
Pilot Rock.	do.	1,817	3	46.3	.....	79	30 <sup>+</sup>	12	1	40	.26	— .15	.0	3	27	3	1	sw.	John P. McManus.		
Pompeii.	Clackamas.	3,879	18	38.8	+ 5.4	67	19	16	26	35	2.92	— 6.19	.70	18.0	7	17	7	7	sw.	O. C. Yocom.	
Portland.	Multnomah.	57	41	49.2	+ 2.9	75	31	31	2	33	.63	— 4.55	.16	.0	8	15	8	8	nw.	U. S. Weather Bureau.	
Port Orford.	Curry.	80	6	48.4	.....	78	29	32	127	30	3.90	— .73	.0	3	11	7	7	sw.	J. D. Loucks.		
Prineville.	Crook.	2,864	18	42.8	+ 2.3	82	31	6	1	55	.19	— .63	.10	3	23	0	8	sw.	Geo. Whitals.		
Prospect.	Jackson.	2,800	5	45.6	.....	88	30	19	1	58	1.10	— .35	.0	4	15	12	4	e.	E. F. Graham.		
Ramsey.	Wasco.	1,350	10	42.9	.....	78	31	14	1	44	.41	— .11	.0	4	23	4	4	e.	Mrs. Iva B. Collins.		
Range.	Grant.	3,500	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. Emma Arbuckle.		
Richland.	Baker.	2,350	10	43.0	.....	78	31	12	1	48	.17	— .17	.0	1	21	5	5	sw.	L. G. Morgan.		
Riverside.	Malheur.	3,000	12	43.0	.....	78	31	12	1	48	.17	— .17	.0	1	21	5	5	sw.	Mrs. Leah Fairman.		
Roseburg.	Douglas.	510	33	48.7	+ 2.1	82	31	23	1	46	.76	— 3.22	.16	.0	8	12	15	4	nw.	U. S. Weather Bureau.	
Salem.	Marion.	120	21	48.5	+ 2.3	77	30	30	17	34	.59	— 3.53	.12	.0	9	16	3	12	n.	M. P. Baldwin.	
Silver Lake.	Lake.	4,700	14	34.4	.....	78	30	25	25	32	1.21	— .50	7.5	5	12	13	6	s.	L. W. Charles.		
Siskiyou.	Douglas.	4,115	3	44.4	.....	78	30	25	27	37	.80	— .20	.0	9	18	10	3	sw.	U. S. Weather Bureau.		
Stafford.	Clackamas.	400	15	48.2	+ 3.2	78	29 <sup>+</sup>	30	26	41	1.01	— 4.03	.24	.0	6	5	7	6	ne.	John P. Gage.	
The Dalles.	Wasco.	112	37	48.4	+ 2.2	82	31	20	1	42	.22	— 1.04	.09	.0	4	23	2	6	w.	S. L. Brooks.	
Toledo.	Lincoln.	75	21	50.0	+ 3.9	81	30	30	17	41	2.60	— 6.26	.70	.0	6	23	8	0	nw.	C. B. Crosno.	
Umatilla.	Umatilla.	340	23	49.1	+ 1.9	85	30	15	1	47	.24	— .53	.16	.0	3	17	5	9	sw.	Mrs. Helen T. Duncan.	
Vale.	Malheur.	2,242	19	44.2	+ 3.6	82	31	9	1	49	.51	— .52	.17	.0	5	26	5	0	ne.	H. P. Osborne.	
Van.	Harney.	3,506	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. Howe.		
Wallace Orchard.	Polk.	170	2	47.8	.....	77	30	29	27	37	.80	— .20	.0	9	18	10	3	sw.	Chas. A. Park.		
Wallowa.	Wallowa.	2,935	8	38.6	.....	73	31	— 13	2	47 <sup>+</sup>	.24	— .08	.0	6	5	7	6	sw.	L. J. Coverstone.		
Warmie.	Wasco.	1,500	10	43.4	.....	84	31	6	1	60	.13	— .08	.0	2	15	0	16	w.	L. A. Swift.		
Warmspring.	Crook.	1,500	9	45.7	.....	82	31	14	2	53	.47	— .27	.0	3	26	4	1	nw.	Claude C. Covey.		
Wasco.	Sherman.	1,263	4	47.9	.....	79	31	18	1	37	.30	— .12	.0	4	22	6	3	w.	J. R. Howell.		
Weston.	Umatilla.	1,800	19	46.6	+ 5.6	74	30	18	3	38	.71	— 1.17	.32	.0	6	15	7	9	se.	M. A. Baker.	
Westfall.	Malheur.	3,000	1	46.4	.....	72	31	5	1	31	1.20	— .37	3.0	6	27	2	2	sw.	H. M. Gilliam.		
Williams.	Josephine.	1,368																			

TABLE 2.—*Daily precipitation for March, 1911. District No. 12, Columbia Valley.*

TABLE 2.—*Daily precipitation for March, 1911. District No. 12—Continued.*

TABLE 2.—*Daily precipitation for March, 1911. District No. 12—Continued.*

Stations.	Watershed.	Day of month.																														Total.			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Washington—Con.																																			
Mount Pleasant	Coast																																		1.25
Moxee	Yakima	.13	.11	T.																														.24	
Newport	Pend Oreille	.05	.21	.16	.21	.06	T.	T.																									1.15		
North Head	Pacific	.01	.02	.05	.22	.04	.07	.09																								1.62			
Northport	Columbia	.20	.11	.07	.09																												.98		
North Yakima	Yakima	.09	.08	T.	.05	T.																											.23		
Nutland	Columbia	.09	.02		.10																												.27		
Odessa	do	.10	.02																														.15		
Oila	Puget Sound	.08																																1.13	
Olympia	do	.04	.03	.05	.37	.16																											2.32		
Omak	Okanogan	.40																																	
Oroville	do																																		
Pedra	Snake	.08																																.50	
Pomeroy	do	.50																																1.10	
Port Crescent	Coast	.06	.01	.04	.35	.09																											1.14		
Port Townsend	Puget Sound																																	.42	
Pulman	Palouse	.55	.20	.30		.09																											1.52		
Quinault	Coast																																		
Republic	Kettle																																	.22	
Rex Creek	Columbia																																	.25	
Ritzville	do																																		
Rock Lake	Palouse	.40	.21	.09	T.																													.86	
Rosalia	do	.36																																.74	
Russells Ranch	Yakima	.02	.11	.04	.07	.05	T.	T.																									.62		
Seattle	Puget Sound	.42	.11	.07	.11	.04	T.	T.																									.88		
Sedro-Woolley	do	.05	.11		.40	.19	.05	.15	.03																							1.59			
Sixprong	Columbia	.11	.03		.05																												.27		
Skagit Power Dam	Puget Sound																																		
Snohomish	do	.35	.18	.14	.38	.04	.32		.16																								1.76		
Snoqualmie Falls	do	.34	.07	.06	.24	.22	.02	.06	.02																							2.13			
Snyders Ranch	Columbia																																		
South Bend	Coast	.26	.03	.04	.40	.13	.09	.53																									4.44		
Spokane	Spokane	.52	.08		.09	.05																											.83		
State University	Puget Sound	.18	.25	.13	.25	.10																											1.06		
Stokes Ranch	Columbia	.03																																.48	
Sullivan Lake																																			
Sumner	Puget Sound	.29	.14	.05	.17	.05																											1.16		
Summyside	Yakima	.13	.08	.01	.04																													.26	
Tacoma	Puget Sound	.43	.13	.13	.13	.07	T.	T.																									1.33		
Tatoosh Island	Coast																																	3.20	
Tleton	Yakima																																		
Tomasket	Okanogan																																	.65	
Touchet	Columbia	.15	.03	.04																														.27	
Touchet Ridge	do	.80		.43																													2.57		
Trinidad	do	.13	.15																														.38		
Vancouver	do	.18	.10	.12		.05																											.70		
Vashon Island	Puget Sound	.50	.15	.05	.32	.08	T.	T.																									1.60		
Wahluke	Columbia	.84	T.																														.84		
Wallace	Okanogan																																	.55	
Walla Walla	Columbia	.18	.02		.01	.10																											.46		
Waterville	do	.18	.20	.05	.40	.10	.05		.10																							1.44			
Wenatchee (near)	do	.10	.11	T.	.18	T.																										.44			
White Salmon	do	.07	.05		.10	.02	.15		.13	.02																					1.01				
Wilbur	do	.07	.15																														.22		
Wind River	do	.13	.21	.02	.31	.43	.21	.15	.13																						3.08				
Winthrop	do																																.17		
Yale	do	.22	.29	.20	.12	.36																										3.99			
Zindel	Snake																																1.49		
Oregon.																																			
Albany	Willamette	.22	T.	.06	.16	.06	.10																										.86		
Ana River	SE. drainage																																	.10	
Ashland	Rogue																																	.57	
Astoria	Columbia	.09	.04	.03	.25	.06	.07	.26</																											

TABLE 2.—*Daily precipitation for March, 1911. District No. 12—Continued.*

TABLE 2.—*Daily precipitation for March, 1911. District No. 12—Continued.*

TABLE 3.—*Maximum and minimum temperatures at selected stations, March, 1911. District No. 12, Columbia Valley.*

Date.	Montana.				Afton, Wyo.	Idaho.														Sho- shone.		Vernon.		Wallace.				
	Kalispell.		Missoula.			Boise.		Bonners Ferry.		Hot Spring.		Lewiston.		Mackay. <sup>ss</sup>		Meadows.		Pocatello.		Salmon.		Sho- shone.		Vernon.		Wallace.		
	Max.	Min.	Max.	Min.		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			
1....	32	3	28	0	29	-9	38	18	48	11	38	16	47	23	20	-5	36	10	24	-7	35	1	43	13				
2....	37	6	37	1	30	-10	41	23	49	11	44	18	51	21	21	-2	38	8	23	-9	38	-3	43	13				
3....	44	21	41	8	34	-2	48	27	36	10	50	20	54	25	35	3	44	17	19	-4	40	1	45	17				
4....	32	23	36	16	42	21	46	33	44	15	52	25	40	35	37	16	50	32	22	4	41	25	36	24				
5....	40	29	40	23	39	19	52	40	44	20	60	35	53	35	33	13	47	34	34	15	45	20	46	30				
6....	48	29	45	21	48	16	55	40	38	24	55	36	54	34	36	14	52	34	40	17	35	20	54	32				
7....	47	31	50	30	44	15	54	42	38	32	58	34	56	37	32	23	48	39	45	27	45	32	41	34				
8....	43	25	47	28	38	26	51	36	44	30	60	35	56	35	40	20	44	34	47	28	40	31	42	26				
9....	41	32	48	32	48	21	50	31	43	33	62	30	59	38	37	9	46	31	40	25	40	21	43	34				
10....	45	34	50	25	44	24	53	35	43	33	60	39	51	35	38	5	48	37	40	17	40	20	44	30				
11....	45	29	42	32	36	17	48	34	44	22	60	35	55	36	36	16	40	33	41	23	38	28	43	34				
12....	45	23	50	24	37	15	52	31	48	20	55	27	59	28	36	5	45	27	42	18	36	13	50	23				
13....	55	23	53	22	33	-1	54	31	50	20	56	26	64	31	33	8	48	25	41	17	38	13	54	24				
14....	54	31	53	29	38	-2	56	32	30	59	31	64	32	37	5	51	26	40	20	40	13	56	24					
15....	54	27	59	24	40	3	60	32	56	22	62	28	66	32	39	8	56	27	44	20	40	16	59	26				
16....	54	27	59	23	39	-2	53	34	60	22	62	29	67	33	42	8	53	28	45	21	43	16	57	27				
17....	52	29	57	33	39	-4	59	33	60	22	62	28	67	35	43	10	54	26	44	24	42	21	57	27				
18....	62	28	61	28	40	8	60	32	61	25	63	28	68	34	42	17	55	29	52	24	39	12	60	29				
19....	60	29	65	27	41	11	65	37	66	25	67	31	71	36	47	19	59	32	53	26	44	19	64	28				
20....	64	31	63	36	42	12	67	37	65	25	71	32	73	38	45	20	62	33	54	27	46	22	66	30				
21....	61	31	65	30	50	21	66	42	66	28	72	35	72	37	49	23	61	34	53	29	48	23	62	30				
22....	60	31	65	31	43	15	68	40	66	28	70	32	76	37	45	23	62	28	61	30	49	23	45	30				
23....	52	29	62	30	51	16	55	39	61	31	60	44	57	45	42	24	60	37	54	27	49	22	48	34				
24....	41	33	45	33	42	27	52	32	53	36	65	25	53	40	40	20	50	34	52	27	48	29	41	30				
25....	38	28	43	26	36	8	44	30	54	26	60	23	52	35	30	19	41	28	48	24	39	25	42	29				
26....	43	20	50	21	32	0	50	29	53	19	62	23	59	30	41	10	44	20	45	28	36	11	48	21				
27....	47	32	46	32	45	3	51	33	50	25	65	27	58	37	42	19	54	30	49	28	40	17	44	33				
28....	57	29	59	27	39	3	60	30	58	27	68	30	69	34	56	20	54	25	56	27	48	11	56	28				
29....	64	35	64	41	49	12	68	37	64	34	74	31	75	39	64	34	64	36	67	23	56	24	63	30				
30....	62	33	64	41	53	18	71	40	67	37	73	36	75	41	53	31	67	38	58	30	57	27	64	31				
31....	58	36	68	37	52	21	75	41	60	28	79	40	78	43	47	29	68	38	66	30	63	30	66	35				
Mns..	49.6	27.3	52.3	25.8	41.1	10.6	55.7	33.8	53.2	25.1	61.4	29.6	61.2	34.5	39.2	15.0	.....	51.6	29.3	44.8	20.6	.....	43.1	18.8	51.0	27.6		

Date.	Washington.														Sho- shone.		Vernon.		Wallace.		Tatoosh Island.		Spokane.		Tacoma.			
	Aberdeen.		Blaine.		Colville.		Kosmos.		Lakeside.		North Head.		North Yakima.		Odessa.		Port Crescent.		Seattle.		Sixprong.		Spokane.		Tacoma.		Tatoosh Island.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	58	29	50	26	43	7	60	23	38	15	57	39	48	16	43	15	47	27	55	32	42	11	44	20	55	27	49	39
2....	63	25	50	25	42	5	64	20	38	13	51	42	50	18	45	17	48	27	54	31	45	16	59	29	49	33	53	37
3....	62	26	49	26	48	8	65	24	39	15	62	39	50	20	50	21	46	25	52	34	48	23	54	20	53	30	43	41
4....	48	36	48	36	45	17	54	37	37	22	46	44	46	30	46	28	46	30	48	24	31	17	47	28	40	37	49	42
5....	49	33	54	33	41	32	49	31	40	29	49	43	43	34	48	34	48	31	50	37	45	32	46	34	49	34	49	42
6....	54	41	60	38	48	32	55	36	43	33	55	43	50	32	47	33	50	34	59	41	48	32	56	30	53	43	53	43
7....	59	40	51	40	48	34	54	34	50	34	52	42	58	36	53	39	55	32	51	41	56	33	58	37	52	42	47	40
8....	50	37	48	41	50	29	58	35	53	33	46	42	58	36	51	37	55	33	50	41	55	34	58	37	50	40	45	40
9....	49	38	44	40	47	30	45	32	47	37	47	42	53	33	50	24	55	35	48	33	50	40	55	34	48	41	44	40
10....	47	39	50	40	50	31	45	32	55	33	45	41	56	28	49	33	50	35	48	39	50	32	44	37	51	38	45	38
11....	51	37	47	35	51	20	58	20	47	33	49	39	51	32	54	31	43	36	48	37	54	32	44	26	46	36	44	36
12....	62	32	49	35	48	19	65	25	50	27	48	40	64	22	60	46	52	30	49	36	59	26	55	28	52	34	48	40
13....	59	28	55	39	45	21	66	30	52	33	47	38	61	26	76	26												

TABLE 3.—*Maximum and minimum temperatures at selected stations for March, 1911. District No. 12—Continued.*

Date.	Walla Walla, Wash.		Oregon.																					
			Ashland.		Baker.		Eugene.		Gold Beach.		Hermiston.		Marshfield.		Portland.		Prineville.		Roseburg.		The Dalles.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.....	33	12	49	37	34	4	54	25	60	33	41	11	63	30	51	34	40	6	55	33	44	20	42	9
2.....	38	18	52	35	39	9	56	29	52	36	47	14	54	28	58	31	46	11	57	28	48	21	45	12
3.....	40	23	60	41	42	18	57	29	61	37	50	17	69	31	57	34	45	20	52	28	52	24	44	23
4.....	44	33	52	40	40	31	55	42	61	36	44	33	61	40	54	42	50	32	56	42	51	37	52	32
5.....	51	31	57	43	43	30	58	40	60	35	49	33	54	39	50	35	50	33	57	40	48	37	51	30
6.....	59	30	51	41	47	35	56	40	60	41	52	29	53	41	53	35	56	38	51	37	55	37	55	34
7.....	58	41	52	34	46	38	56	38	56	43	62	31	59	34	59	32	59	34	58	41	55	33	54	33
8.....	54	41	53	34	44	30	60	40	58	40	62	32	50	39	52	42	53	30	54	37	55	35	54	41
9.....	57	38	53	30	45	26	54	40	61	38	60	30	53	40	41	35	55	19	57	36	56	38	58	30
10.....	49	36	52	30	45	27	54	33	52	34	60	30	49	41	49	38	57	19	50	34	55	31	57	27
11.....	58	36	54	36	46	29	50	33	55	42	60	34	54	43	49	40	54	24	56	37	52	37	54	33
12.....	58	37	61	30	51	25	53	33	57	31	64	34	58	36	54	35	58	20	62	34	58	27	58	25
13.....	62	36	66	34	53	27	56	29	59	32	67	34	64	29	62	35	64	32	62	29	59	32	62	25
14.....	65	41	70	36	54	28	59	31	62	33	69	26	68	32	64	38	65	26	68	32	68	31	62	26
15.....	65	39	67	39	55	30	62	36	63	34	69	25	68	32	68	40	65	23	73	33	67	32	68	25
16.....	67	42	65	36	56	29	69	36	50	36	70	28	50	39	68	37	67	22	70	32	70	32	65	27
17.....	67	43	66	36	57	29	68	32	50	41	71	25	53	39	59	41	67	23	68	32	68	33	66	29
18.....	67	44	71	34	60	31	60	31	61	35	71	29	57	41	63	41	69	20	68	30	68	34	68	28
19.....	72	40	73	39	64	31	58	31	56	35	76	23	57	36	70	37	71	25	78	32	71	32	68	27
20.....	73	50	68	39	63	33	72	37	55	45	79	29	50	46	59	40	65	27	62	35	70	37	70	28
21.....	69	46	66	37	64	33	53	41	55	43	74	35	57	44	62	47	71	27	64	43	70	40	73	30
22.....	79	43	69	39	64	33	57	37	56	43	78	30	57	42	63	41	75	27	64	38	73	37	68	44
23.....	64	41	58	41	55	31	60	40	56	41	79	50	54	42	56	45	55	40	58	44	68	50	55	26
24.....	54	36	54	39	44	28	57	40	56	40	63	41	50	43	52	41	56	36	55	38	64	38	50	32
25.....	53	36	55	34	40	26	52	30	56	34	65	37	54	34	51	38	50	18	54	30	53	37	56	20
26.....	61	34	61	32	46	22	53	27	53	34	64	20	56	34	54	36	59	16	59	32	60	26	58	26
27.....	56	37	64	33	45	30	55	31	55	41	64	36	54	35	55	37	59	29	61	33	58	40	57	24
28.....	67	39	72	35	62	25	55	29	64	38	70	32	65	35	64	37	76	23	72	32	73	35	78	23
29.....	74	49	78	41	68	33	64	32	67	36	81	39	75	35	72	44	79	26	75	35	78	45	79	30
30.....	76	47	80	43	69	35	70	35	70	39	84	31	77	37	74	47	80	27	80	39	81	40	78	34
31.....	78	51	80	46	74	34	74	37	70	43	84	31	72	38	75	47	82	27	82	41	82	40	83	33
Means.....	60.1	37.7	62.2	36.9	52.1	28.1	58.6	34.3	57.8	37.7	65.5	29.9	58.5	37.3	58.8	39.5	60.9	24.8	62.8	34.6	62.3	34.6	60.5	27.9